RAYTHEON

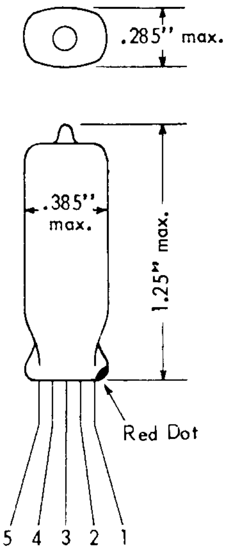
TECHNICAL INFORMATION

SUBMINIATURE PENTODE

TYPE CK512AX

Excellence in Electronics

The CK512AX is a filament type pentode of subminiature construction designed primarily for use in resistance coupled audio frequency and direct coupled amplifiers. Typical applications are wearable or portable instruments. The tube features low battery drain, long life, small size and low microphonic level. The flexible terminal leads may be soldered or welded directly to the terminals of circuit components without the use of sockets. Standard inline subminiature sockets may be used by cutting the leads to a suitable length.



MECHANICAL DATA

ENVELOPE: T-2X3 Glass

BASE: None (0.016" tinned flexible leads. Length: 1.5" min. Spacing: 0.048" center-to-center)

TERMINAL CONNECTIONS: *(Red Dot is adjacent to Lead 1)*

Lead 1 Plate	Lead 4 Grid #1
Lead 2 Grid #2	Lead 5 Filament, Negative; Grid #3●
Lead 3 Filament, Positive; Grid #3●	

MOUNTING POSITION: Any

ELECTRICAL DATA

DIRECT INTERELECTRODE CAPACITANCES: *(uufds.)* *

Grid to Plate: (g to p)	0.10 max.
Input: g 1 to (f+g 2+g 3)	2.3
Output: p to (f+g 2+g 3)	1.5

RATINGS - ABSOLUTE MAXIMUM VALUES:

Filament Voltage (dc)	0.625 ± 20%	volts
Plate Voltage	25	volts
Grid #2 Voltage	25	volts
Cathode Current	0.1	ma.

AVERAGE CHARACTERISTICS:

Filament Voltage (dc)	0.625	volts
Filament Current	20	ma.
Plate Voltage	15	volts
Grid #2 Voltage	15	volts
Grid #1 Voltage	-1.0	volt
Plate Current	50	μa.
Grid #2 Current	20	μa.
Transconductance	105	μmhos
Plate Resistance	2.0	meg.

TYPICAL OPERATION - RESISTANCE COUPLED AUDIO FREQUENCY AMPLIFIER:

	First Stage		Second Stage		
Filament Voltage (dc)	0.625	0.625	0.625	0.625	volts
Plate and Grid #2 Supply Voltage	15	22.5	15	22.5	volts
Grid #1 Voltage ▲	0	0	-0.625	-0.625	volts
Plate Resistor	1.0	1.0	1.0	1.0	meg.
Grid #2 Resistor	2.2	2.7	1.0	1.5	meg.
Average Voltage Gain (G 1 to P) ♦	26:1	37:1	22:1	33:1	
Approx. Voltage Gain (G 2 to P)	3:1	4:1	3:1	4:1	

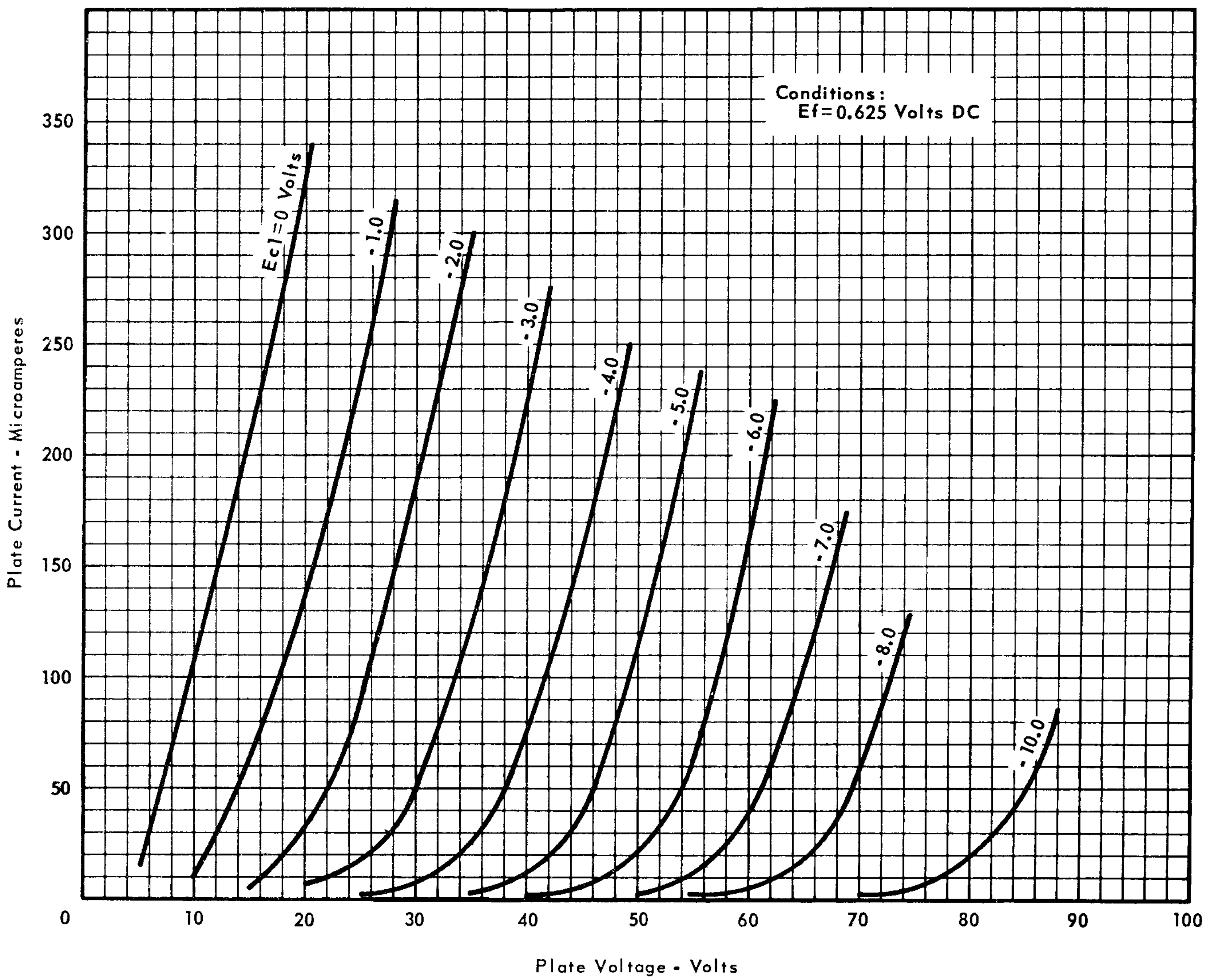
* *With no external Shield.*

▲ *Control grid should be returned through approximately 5 to 22 megohms to negative filament or bias voltage.*

♦ *The values of voltage gain are quoted for a coupled load of 5 megohms, zero source impedance, and a 5 megohm grid resistor.*

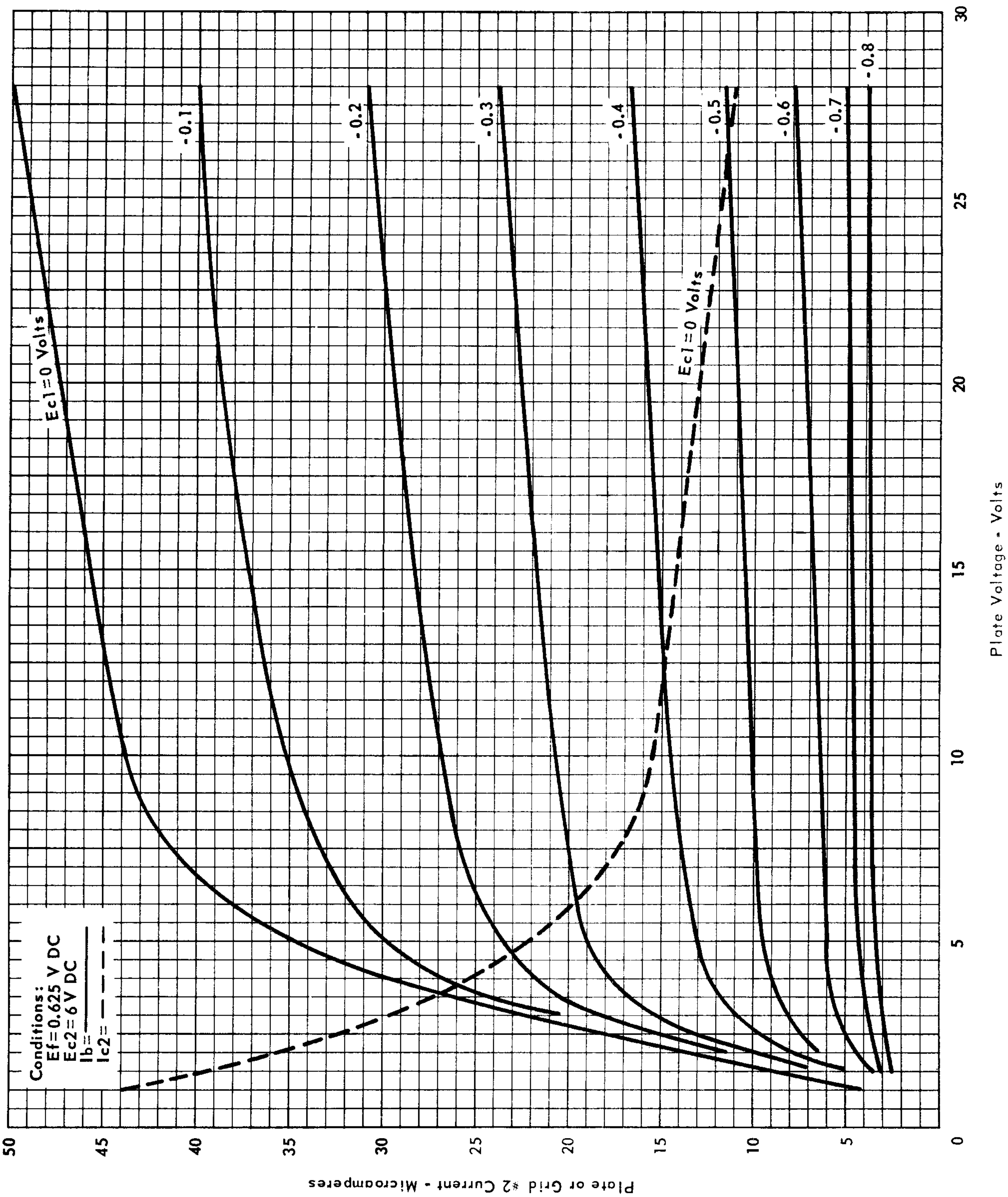
● *Grid #3 is comprised of two deflector plates, one being connected to Lead 3 and the other to Lead 5.*

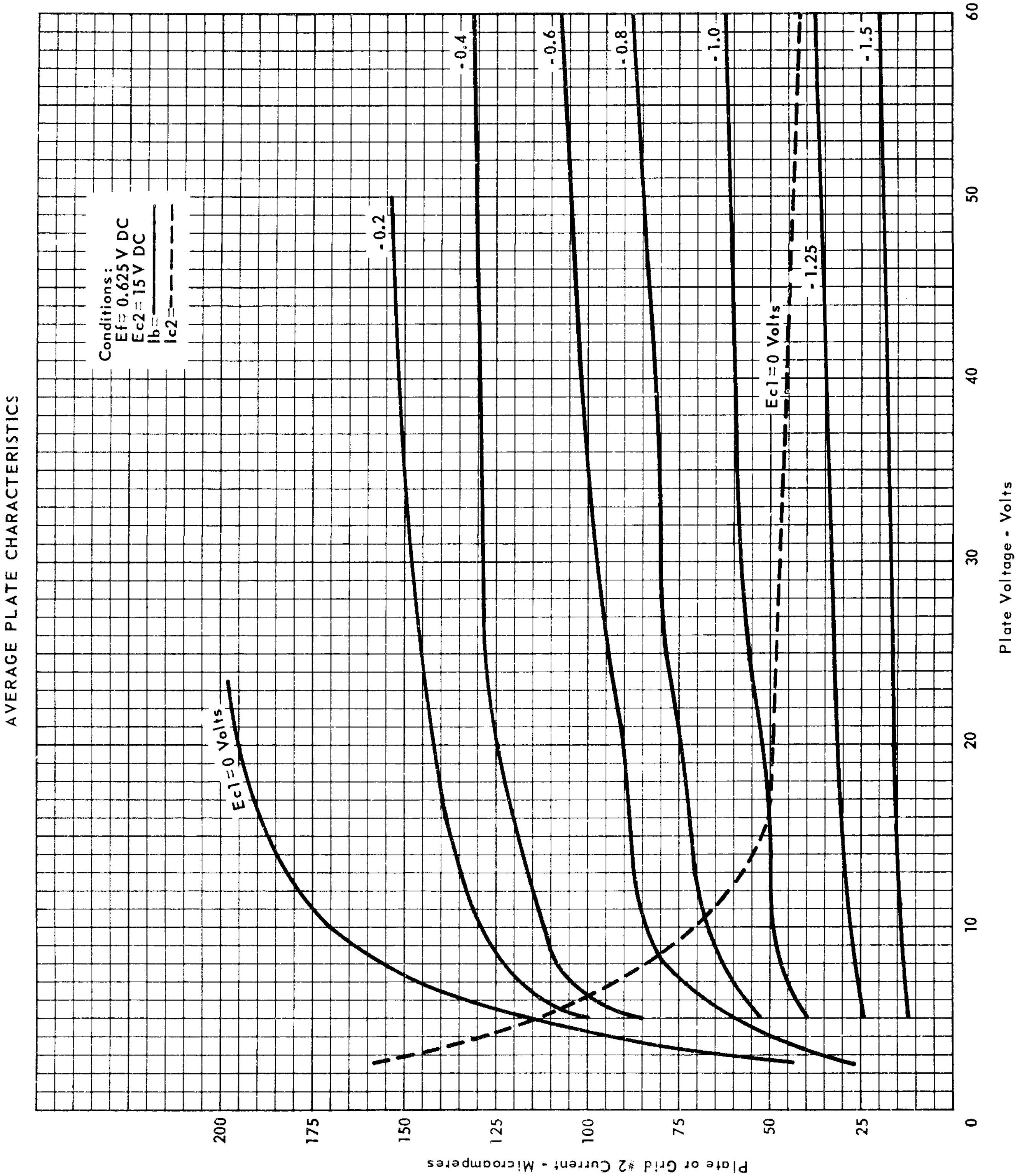
AVERAGE PLATE CHARACTERISTICS
(Triode Connected)



SUBMINIATURE PENTODE

AVERAGE PLATE CHARACTERISTICS




AVERAGE PLATE CHARACTERISTICS
Conditions:
Ef = 0.625 V DC
Ec2 = 15 V DC
Ib =
Ic2 =
Ec1 = 0 Volts
-0.2
-0.4
-0.6
-0.8
-1.0
-1.25
-1.5
Ec1 = 0 Volts
Plate Voltage - Volts
0
10
20
30
40
50
60
Plate or Grid #2 Current - Microamperes
200
175
150
125
100
75
50
25
0

SUBMINIATURE PENTODE

